

CLAIMS

What is claimed is:

1. A vibration damper comprising:

a cylinder containing a damping medium;

a piston rod extending from said cylinder;

a piston connected to said piston rod, said piston having a piston rod side and a side away from said piston rod, said piston separating said cylinder into a working space on the piston rod side and a working space on the side away from the piston rod;

a bypass connecting said working spaces when the piston is in a limited range of positions;

at least one first through-channel for flow in a first direction between working spaces through the piston, each said first through-channel having an outlet side; and

a first valve disk covering said outlet side and having a first pressure-actuated surface upon which pressure can act to lift the valve disk from a closed position to an open position to permit flow in said first direction, and a second pressure actuated surface which is separated from the first pressure-actuated surface when the valve disk is in the closed position and can be acted on by damping medium via the bypass so that the pressure on the first and second pressure actuated surfaces of said first valve disk is additive.

2. A vibration damper as in claim 1 wherein said bypass comprises a groove formed in said cylinder.

1 3. A vibration damper as in claim 2 wherein said groove comprises an
2 inlet area.

1 4. A vibration damper as in claim 2 wherein said groove comprises an
2 outlet area.

1 5. A vibration damper as in claim 1 further comprising a sealing sleeve
2 received in said cylinder and extending from said valve disk into the working space
3 opposite said disk from said piston.

1 6. A vibration damper as in claim 5 wherein said valve disk and said
2 sealing sleeve are made as a single unit.

1 7. A vibration damper as in claim 5 wherein said valve disk and said
2 sealing sleeve are made as separate components.

1 8. A vibration damper as in claim 7 further comprising a valve spring
2 pretensioning said sealing sleeve against said valve disk.

1 9. A vibration damper as in claim 8 wherein said spring has a spring
2 characteristic which is selected so that the sealing sleeve can rise from the valve disk
3 when the piston reaches a predetermined position.

1 10. A vibration damper as in claim 5 further comprising a seal between
2 said sealing sleeve and said cylinder.

1 11. A vibration damper as in claim 10 wherein said bypass has a length
2 and said piston has a sealing ring separated from said seal by a distance which is
3 greater than or equal to the length of the bypass.

1 12. A vibration damper as in claim 1 further comprising a pair of
2 concentrically arranged valve seating surfaces for seating said first valve disk, said
3 valve seating surfaces defining said first pressure actuated area therebetween.

1 13. A vibration damper as in claim 1 wherein said second pressure-
2 actuated area lies radially outside of said valve seating surfaces.

1 14. A vibration damper as in claim 1 further comprising a nonreturn
2 valve which blocks flow of pressure medium in said first direction toward said second
3 pressure actuated surface.

1 15. A vibration damper as in claim 1 further comprising
2 at least one second through-channel for flow in a second direction through
3 the piston, each said second through-channel having an outlet side
4 a second valve disk covering said outlet side of said second through-channel and
5 having a first pressure-actuated surface upon which pressure can act to lift the valve
6 disk from a closed position to an open position to permit flow in said second direction,
7 and a second pressure actuated surface which is separated from the first pressure-
8 actuated surface when the second valve disk is in the closed position and can be acted

- 9 on by damping medium via the bypass so that the pressure on the first and second
- 10 pressure actuated surfaces of said second valve disk is additive.